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Welcome!

After 20 years of running the Workshop on Information Optics (WIO) in different countries, it is our pleasure to welcome you to the WIO 2019 taking place in Sweden at KTH Royal Institute of Technology in Stockholm (Kista campus).

The workshop will address the latest advances in information optics and photonics, imaging sciences and engineering, optics/photonics communication, display technologies and 3D displays, 3D image sensing, image-based information security, image recognition, biophotonics, and novel image sensors. It will be a forum for scientific interaction and collaboration between well-known scientists in the field and educational outreach to students.

The workshop has started with the Euro-American Workshop on Optical Pattern Recognition in La Rochelle, 1994.

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Holographic waveguides recorded on photopolymer materials

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In this work we present a study of Holographic waveguides recorded in photopolymers [1, 2]. The holographic waveguides presented in this work are created by recording two holograms [3] in a glass substrate; the first hologram acting as an in-coupler element, and the second hologram acting as an out-coupler element. Then light is guided through the glass substrate by total internal reflection. This particular device can serve as a see-through display, which has numerous applications in incoming technologies closely related to augmented reality. The role that augmented reality is expected to play in our Society in the near future is out of doubt. Therefore there is a need to invest time and money in the research of new technologies with the aim of improving the visualization capacities of augmented reality devices. The optimization of the device proposed was basically centered on the photopolymer composition [4]. In this way some features such as low shrinkage, optimum refractive index modulation and recording sensitivity, thickness, etc. were controlled in order to fabricate the holographic waveguides.

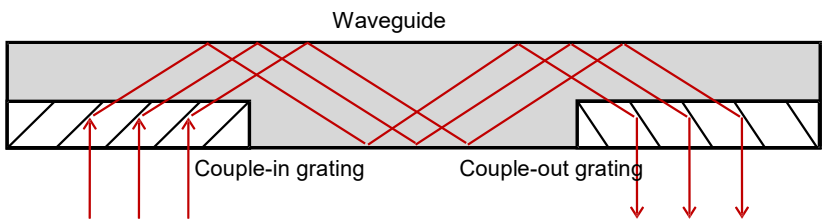

Fig. 1. Holographic Waveguide with two coupling gratings

In Figure 1 a scheme of the device and how it works is presented. In Figure 2 a photograph of the actual device is shown. From figure 2 it can be seen that the beam is guided through the device by the accomplishing of total internal reflection in the glass substrate.

Fig. 2. Holographic Waveguide

References

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